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THE BIRTH-RATE IN NEW HAMPSHIRE.

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I. *Introductory Survey of the Conditions in the United States.*

The student of American vital statistics is very apt to complain of the meager quantity and indifferent quality of the materials with which he has to work. Only a few States and a few cities in other States record and publish statistics of births, marriages, and deaths that are accurate enough to be of any use to the investigator. Moreover, progress toward a better state of affairs is discouragingly slow. On the other hand, however, it may be doubted whether students of vital statistics have made full use of the materials that have been furnished them. Slowly as these materials have accumulated, it may be urged with reason that the work of interpretation has been even more a laggard. Probably this very fact is partly responsible for the lack of materials. Our registration systems will be bettered when there is a greater public interest in the problems of vital statistics. State registration reports and federal census volumes are necessarily closed books to the average citizen,* and it is only through the development

* If proof of this assertion were needed, it could be found in the popular articles incited by President Roosevelt's reference to "race suicide." Scarcely one of these contained data drawn from the fundamental sources of statistical information. About the only exceptions were the few which made use of Dr. R. Kuczynski's noteworthy study of "The Fecundity of the Native and Foreign-born Population in Massachusetts," published in the *Quarterly Journal of Economics*, November, 1901, and February, 1902.

of interpretation and analysis in this field that a wider appreciation of the value of vital statistics can be gained.

One of the causes of this backwardness of interpretative work in the field of vital statistics seems to be an unwillingness on the part of statistical students to dispense with some of the old and well-established forms of statistical presentation. The natural increase of the population, for example, has customarily been measured in terms of certain familiar statistical coefficients, such as the ratio of the number of births to the total population, or the average number of births per marriage. It often happens that our published sources of statistical information do not afford the data necessary to answer questions couched in the customary terms. In only eight States is the number of births known at all accurately, while information as to the average number of children per marriage is completely lacking.* Our official statistics do contain material that is of value in the study of the natural increase of the population, but most if this material will yield its information only to the investigator who is willing to do without some of the old ratios and to adopt or devise methods of presentation that are compatible with the material at hand.

The statistics of the Federal Census as to the proportion of young children in the population are probably of as great significance as is the birth-rate. The ratio of births to the total population, like the ratio of young children to the total population, is of significance only as showing the extent to which the population, taken as a whole, is growing by natural increase. Of these two ratios the proportion of young children is the better measure, since infant mortality is usually high for the population groups which have a high birth-rate, so that the birth-rate exaggerates differences in natural increase. Neither ratio is a measure of

* The Federal Census of 1900 obtained information as to the number of children that had been born to each married, widowed, or divorced woman, together with the number of such children that were living at the date of the census. The invaluable information thus obtained has never been published by the Census Office.

physical fecundity, which can be got at only by eliminating the variations of different population classes as to sex, age, and conjugal condition. The most available measure of fecundity is the ratio of births or of young children to married women of child-bearing age. The birth ratio is, of course, the better absolute measure of fecundity; but the other ratio, which indicates not only the extent to which women of various population classes are bearing children, but also their success in rearing them, has a significance of its own.* Moreover, the census gives us the number of young children for all of the States and Territories. A possible reason for the neglect of the census figures is that their accuracy has been officially impeached.† There is no doubt but that there are serious deficiencies in the census returns of young children; but these deficiencies are due in general to overstatement of age, and in but very small degree to omissions in the enumeration.‡ However, these deficiencies have to be reckoned with by the investigator, as they vary for different censuses and for different population classes. They are probably less important in the census of 1900 than in any previous census.

A table showing the number and per cent. of the total population of each State under one and under five years of age is printed in Bulletin 13 of the Bureau of the Census.§ Neglecting the urban District of Columbia, the seven States

* Cf. W. F. Willcox, "The Proportion of Children in the United States," *Bulletin* 22 of the Bureau of the Census. In this bulletin, as in his study of the negro population in *Bulletin* 8 of the Bureau of the Census, Professor Willcox uses the proportion of children under five to all women between fifteen and forty-five as a measure of fecundity.

See also W. Lexis, "Ueber die Messung der Fruchtbarkeit und ihr Verhältniss zur Sterblichkeit," *Bulletin de l'Institut International de Statistique*, tome xiv, quatrième livraison, p. 1 and ff. Lexis proposes as a "fecundity coefficient" the ratio of the number of births in a given twenty-year period to the number of births in a twenty-year period beginning twenty-five years earlier.

† *Twelfth Census*, vol. 3, pp. xl and ff. See also W. A. King, "The Decrease in the Proportion of Children," *Political Science Quarterly*, vol. 12, pp. 608 and ff.

‡ A detailed argument to this effect has been presented by the present writer in an article on "The Enumeration of Children," *Quarterly Publications of the American Statistical Association*, vol. 7, pp. 27 and ff. Cf. *Bulletin* 13 of the Bureau of the Census, pp. 16 and ff. and *Bulletin* 22, pp. 8 and ff.

§ Table 43, p. 42.

in which the per cent. of the population less than a year old is least are, in order, California, Nevada, Maine, Oregon, New Hampshire, Vermont, and Washington. These States form two clearly defined groups,—one in the extreme East, and one in the extreme West. These ratios indicate simply that the rate of natural increase in the Pacific States and in the northern tier of New England States is extremely low. The fecundity of the population of the various States is indicated in Table I, which shows the ratio of children under one to married women of child-bearing age.*

The maximum ratio of children under one to married women of child-bearing age was, in 1900, 26.8, found in North Carolina. Neglecting again the District of Columbia, the ratio is a minimum in California, where it is only 13.8. The next smallest ratios are in Vermont, New Hampshire, and Maine, followed by Colorado, Oregon, and Washington. In general, these ratios vary with the proportion of children in the total population. The twenty-six States in which the ratio of children under one to married women of child-bearing age is less than the ratio for Continental United States taken as a whole are the States in which the ratio of children under one to the total population is less than for Continental United States taken as a whole. It should not be inferred, however, that there is an exact correlation between the two ratios. New Mexico, sixth among the States in the per cent. children under one make of the total population, is twentieth in their ratio to married women of child-bearing age; Virginia, twentieth with respect to the first ratio, is sixth with reference to the other; Oklahoma, eighth in the first ratio, is nineteenth in the second.

* The numbers on which the per cents. are based are omitted for economy of space. The number of children under one is given for States and Territories in *Bulletin 13* of the Bureau of the Census, p. 42. The number of married women of child-bearing age has been computed from the tables given in *Twelfth Census*, vol. 2, pp. 254 and ff. and *Eleventh Census, Report on Population*, Part 2, pp. 832 and ff.

TABLE I.

PER CENTS. THAT CHILDREN UNDER ONE MAKE OF MARRIED WOMEN FROM FIFTEEN
TO FORTY-FIVE YEARS OF AGE, BY STATES AND TERRITORIES, 1900 AND 1890.

Geographical Divisions.	Per Cent. 1900.	Per Cent. 1890.	Gain or Loss, 1890-1900.
Continental United States	19.4	19.6	-0.2
North Atlantic Division	17.2	16.6	+0.6
New England	16.5	14.9	+1.6
Maine	15.2	13.3	+1.9
New Hampshire.	15.2	13.3	+1.9
Vermont	15.1	13.6	+1.5
Massachusetts	17.0	15.4	+1.6
Rhode Island	17.2	15.9	+1.3
Connecticut	16.9	15.6	+1.3
Southern North Atlantic	17.5	17.2	+0.3
New York	16.4	15.9	+0.5
New Jersey	16.7	16.7	0.0
Pennsylvania	19.0	19.0	0.0
South Atlantic Division	23.5	22.5	+1.0
Northern South Atlantic	21.9	21.4	+0.5
Delaware.	17.2	17.3	-0.1
Maryland	19.1	19.3	-0.2
District of Columbia	12.9	15.5	-2.6
Virginia	24.1	22.8	+1.3
West Virginia.	24.9	24.2	+0.7
Southern South Atlantic	24.7	23.3	+1.4
North Carolina	26.8	24.5	+2.3
South Carolina	25.7	23.8	+1.9
Georgia	23.4	22.8	+0.6
Florida	21.1	20.2	+0.9
North Central Division.	18.2	19.5	-1.3
Eastern North Central	17.3	18.6	-1.3
Ohio	16.1	17.5	-1.4
Indiana	16.7	18.1	-1.4
Illinois	17.6	19.7	-2.1
Michigan	16.5	17.0	-0.5
Wisconsin	20.7	21.1	-0.4

TABLE I—(continued).

Geographical Divisions.	Per Cent. 1900.	Per Cent. 1890.	Gain or Loss, 1890-1900.
Western North Central.	19.8	21.0	-1.2
Minnesota	22.4	23.0	-0.6
Iowa	19.1	20.0	-0.9
Missouri	18.3	20.9	-2.6
North Dakota	25.9	25.9	0.0
South Dakota	23.9	23.3	+0.6
Nebraska	20.1	20.6	-0.5
Kansas	18.6	20.1	-1.5
South Central Division	22.9	23.0	-0.1
Eastern South Central	22.8	23.0	-0.2
Kentucky	22.2	22.4	-0.2
Tennessee	22.4	23.4	-1.0
Alabama	23.7	23.1	+0.6
Mississippi	23.1	23.2	-0.1
Western South Central	23.1	23.1	0.0
Louisiana	22.2	22.1	+0.1
Arkansas	22.8	24.4	-1.6
Indian Territory	23.5		
Oklahoma	22.0	17.7	+4.3
Texas	23.6	23.0	+0.6
Western Division	16.6	17.6	-1.0
Rocky Mountain	17.9	18.6	-0.7
Montana	17.7	18.4	-0.7
Idaho	22.3	21.4	+0.9
Wyoming	18.7	17.2	+1.5
Colorado	15.2	17.2	-2.0
New Mexico	21.6	21.2	+0.4
Basin and Plateau.	23.5	22.8	+0.7
Arizona	19.5	19.7	-0.2
Utah	26.3	25.0	+1.3
Nevada	16.2	15.5	+0.7
Pacific	14.6	16.3	-1.7
Washington	16.0	17.6	-1.6
Oregon	15.5	17.3	-1.8
California	13.8	15.5	-1.7

The differences between the per cents. for 1900 and for 1890, shown in Table I, indicate some changes in the fecundity of the population of the several States. In interpreting

these differences, it should be remembered that the deficiencies in the number of children reported as less than a year old at the census of 1890 were especially large on account of the absurd form of the age question at that census.* This fact would in itself tend to bring about an apparent increase in the ratios shown in Table I. On this account an increase in the ratio of less than 1 per cent. may probably be dismissed as not very significant. In the New England States, as well as in Virginia, North and South Carolina, Oklahoma, Wyoming, and Utah, the increase in the ratio is more than 1 per cent. In view of the marked increase in Maine, New Hampshire, and Vermont, the equally marked decrease in the other region of low birth-rate—the Pacific division—is notable. A decrease also appears in all of the States of

TABLE II.

PER CENTS. THAT CHILDREN UNDER ONE MAKE OF MARRIED WOMEN BETWEEN FIFTEEN AND FORTY-FIVE YEARS OF AGE, CLASSIFIED BY NATIVITY AND COLOR, FOR CONTINENTAL UNITED STATES, 1900 AND 1890.

	1900.	1890.
Aggregate married women 15 to 45 years of age	9,874,408	7,979,229
Aggregate children under 1	1,916,892	1,566,734
Per cent.	19.4	19.6
Married women 15 to 45 years of age, native white	6,914,920	5,529,367
Children under 1, native white of native parents	1,157,534	941,657
Per cent.	16.7	17.0
Married women 15 to 45 years of age, foreign white	1,804,289	1,516,239
Children under 1, native white of foreign parents	503,471	413,257
Per cent.	27.9	27.3
Married women 15 to 45 years of age, foreign white	1,804,289	1,516,239
Children under 1, native white of foreign parents and foreign white	507,473	417,463
Per cent.	28.1	27.5
Married women 15 to 45 years of age, colored	1,155,199	933,623
Children under 1, colored	251,885	207,614
Per cent.	21.8	22.2

*See *Bulletin* 13 of the Bureau of the Census, pp. 18 and ff.

the North Central division, except South Dakota, and in a number of Southern and Western States. Corresponding ratios for the most important classes of the population are shown in Table II.

In the aggregate population there is one child less than a year old for every five married women of child-bearing age. Notwithstanding the fact that the reports of children under one were more complete in 1900 than in 1890, the ratio of children under one to married women of child-bearing age was slightly greater at the earlier census. For the purpose of determining this ratio among the native white population, the number of native white married women of child-bearing age has been compared with the number of native white children of native parentage. The per cents. thus obtained are somewhat too small, for the class of the population tabulated as "native white of native parentage" does not include those persons whose fathers were foreign-born and whose mothers were natives. In 1900 such persons numbered 3,402,237. If the age distribution of this class is at all like that of the aggregate population, approximately 85,000 of this number were less than a year old. Adding 85,000 to the number of children who were tabulated as "native white of native parents," a total of 1,243,000 is obtained, making the ratio of children under one to native white married women of child-bearing age 18 instead of 16.7 per cent. The corresponding ratio for the foreign white population has been determined by comparing the foreign white married women of child-bearing age with (1) the number of native white children of foreign parents less than a year old, and (2) the number of native white children of foreign parents less than a year old plus the number of foreign-born children of the same age. The second ratio is, of course, the more significant. However, this ratio exaggerates the fecundity of this class of the population, for the "native white of foreign parents" include persons born of native mothers and foreign fathers. As already

explained, 85,000 may be taken as the approximate number of this class who are less than a year old. Making the proper subtraction, we find the number of children under one having foreign-born mothers to be approximately 422,500. This gives a ratio of 23.4 per cent instead of 28.1 per cent., as indicative of the fecundity of this class of the population. Even after these corrections it appears that the ratio of children to married women of child-bearing age is greatest among the foreign white population, and least for the native white population. For each class of the population, except the foreign white, the ratio is less for 1900 than for 1890. It is probable that, if the greater over-statement of ages of children in 1890 were taken into account, the ratio for the foreign-white population would also show a decrease during the decade.

TABLE III.

PER CENTS. THAT CHILDREN UNDER ONE MAKE OF MARRIED WOMEN BETWEEN FIFTEEN AND FORTY-FIVE YEARS OF AGE, FOR CITIES OF OVER 100,000 POPULATION, AND FOR SMALLER CITIES AND RURAL DISTRICTS, 1900 AND 1890.

	Married Women 15-45 Years Old.	Children under 1.	Per Cent.
1900:—			
Cities of 100,000, and over	1,948,624	317,350	16.3
Smaller cities and rural districts . . .	7,925,784	1,599,542	20.2
1890:—			
Cities of 100,000, and over	1,307,166	227,391	17.4
Smaller cities and rural districts . . .	6,672,063	1,339,343	20.1

Table III shows similar ratios for urban and rural districts. It will be noticed that the fecundity ratio is decidedly smaller in the large cities than in the smaller cities and rural districts, the difference being more noticeable in 1900 than in 1890.

The facts presented thus far have been of a general nature, and most of the inferences deduced from them are prob-

ably familiar to all students of American vital statistics. They are of use in this connection chiefly as illustrating a useful and comparatively neglected method of studying the rate of natural increase, and as giving significance to the more detailed analysis of the conditions in New Hampshire, one of the States of Northern New England in which, it will be remembered, the fecundity of the population is less than in any other part of the United States, with the exception of California. Even in this more detailed study the present writer does not hope to bring forward facts of general significance that are entirely new. It is well known that in New Hampshire there are in juxtaposition a large and growing foreign-born population of exceptionally high fecundity—the French Canadians—and a native population of “New England stock” the vitality of which has been depleted—at least so far as the rural population is concerned—by emigration of the more enterprising and virile elements. What the general results of a statistical investigation into the fecundity of the New Hampshire population will be is a foregone conclusion. On this account more weight has been given to methods of treatment than to results, although it is hoped that a few of the facts ascertained will be found to be new.

II. *The Birth-rate in New Hampshire.*

For convenience of reference some of the more important facts revealed by the census about the population of New Hampshire are brought together in Table IV.

TABLE IV.
POPULATION OF NEW HAMPSHIRE, 1900, 1890, AND 1880.

	1900.	1890.	1880.
Total population	411,588	376,530	346,991
Increase over population at previous census . . .	35,058	29,539	28,691
Per cent. increase	9.3	8.5	9.0
Population of five largest cities*	124,361	103,058	81,247
Per cent. of total population	30.2	27.4	23.4
Foreign-born population	88,107	72,340	46,294
Per cent. of total population	21.4	19.2	13.3
Born in Canada	58,967	46,321	27,142
Per cent. of total foreign-born	66.9	64.0	58.6
French Canadian population	44,420		
Per cent. of total born in Canada	75.3		
Female population	206,209	189,964	176,465
Per cent. of total population	50.1	50.4	50.8
Married women 15-45 years of age	53,005	47,566	
Per cent. of total female population	25.7	25.0	
Children under one year of age	8,048	6,347	6,141
Per cent. ratio to total population	2.0	1.7	1.8
Per cent. ratio to married women 15-45 yrs. old .	15.2	13.3	

The population of New Hampshire has not increased rapidly during the two decades covered by the table. In fact, between 1890 and 1900 only five States (including Maine and Vermont) grew less rapidly than New Hampshire. Growth by natural increase has been even less rapid; for 88 per cent. of the total growth between 1880 and 1890

* Concord, Dover, Manchester, Nashua, and Portsmouth, each of which had over 10,000 population in 1900.

and 45 per cent. of the total growth between 1890 and 1900 is accounted for by the increased numbers of the foreign-born, who now amount to over a fifth of the total population of the State. Two-thirds of the foreign-born population are Canadians. About one-half of the total foreign-born are French Canadians. Previous to 1900 the census did not differentiate French Canadians from others born in Canada,—an omission which is unfortunate, in view of the well-known high fecundity of the French Canadians. New Hampshire has no centres of population that are characteristically urban, the largest city—Manchester—having in 1900 but 57,000 inhabitants. However, the conditions of life in Manchester and the other large towns of the State are so different from the conditions in the purely rural communities that it is worth while to keep in mind the gradual increase in the relative importance of the urban population during the period covered by the table. The per cent. of females in the population has remained fairly constant, as has the per cent. of those who are married and of child-bearing age. The marked increase in the proportion of children in the population might be deemed of small significance if it were shown only for the decade 1890–1900, but this proportion is larger for 1900 than for 1880; and the returns of young children were almost as accurate in 1880 as in 1900.*

However, the census returns are not our only source of information about the birth-rate in New Hampshire. Since 1880 the State has published statistics of the registered births. Table V shows the number of births in each year for which returns have been published.

* *Bulletin* 13 of the Bureau of the Census, p. 17 and ff.

TABLE V.
BIRTHS AND BIRTH-RATES IN NEW HAMPSHIRE, 1880-1903.

Year.	Births.	Births per 1,000 Popula- tion.*	Year.	Births.	Births per 1,000 Popula- tion.*	Births per 1,000 Married Women 15-45 Years Old.*
1880 . . .	4,249	12.2	1890 . . .	6,946	18.4	146.0
1881 . . .	4,615	13.2	1891 . . .	7,510	19.8	156.1
1882 . . .	6,124	17.4	1892 . . .	7,746	20.2	159.2
1883 . . .	6,150	17.3	1893 . . .	8,348	21.6	169.7
1884 . . .	6,247	17.4	1894 . . .	7,860	20.1	158.0
1885 . . .	6,319	17.5	1895 . . .	8,252	20.9	164.1
1886 . . .	6,657	18.3	1896 . . .	8,434	21.2	165.9
1887 . . .	6,910	18.8	1897 . . .	8,459	21.1	164.7
1888 . . .	6,443	17.4	1898 . . .	8,321	20.6	160.3
1889 . . .	6,912	18.5	1899 . . .	8,118	19.9	154.7
—	—	—	1900 . . .	8,435	20.5	159.1
—	—	—	1901 . . .	8,164	19.7	152.4
—	—	—	1902 . . .	8,249	19.7	152.5
—	—	—	1903 . . .	8,318	19.7	152.3

* Constant arithmetical increase assumed for inter-censal years.

If these statistics are trustworthy, there was a remarkable increase of the birth-rate in New Hampshire between 1880 and 1890,—an increase not so apparent in the following decade. The ratio of the arithmetic average of the births in the five years, 1888 to 1892, inclusive, to the population in 1890 is 18.9 per thousand. A similar ratio computed for the period ten years later is 20.1. The *per mille* ratios which the same averages bear to the number of married women of child-bearing age are 149.5 for the earlier and 155.8 for the later census. However, it will be noticed that since 1891 the birth-rate has been fairly constant.

As a matter of fact, the apparent increase in the birth-rate for the earlier years included in the table must be credited to the growing completeness of the registration of births. Important laws looking toward the improvement of the

registration of births were enacted in 1883 and 1893,* and the administration of these laws has undoubtedly been bettered.† Indeed, it might be supposed that the New Hampshire birth-rate has of late years been decreasing rather than increasing, if it were not for the fact that the returns for years previous to 1894 include still-births. Since 1894 still-births have been separately tabulated, and have amounted to 5.1 per cent. of the total returns. If this per cent. is deducted from the returns for years previous to 1894, the birth-rate for 1890 (computed on the five-year average) becomes 17.9 per thousand population, and 141.8 per thousand married women of child-bearing age. This correction cannot be justified in its entirety, however, for it is probable that the registration of still-births was much less complete in the years before they were separately tabulated than in later years.

The census and registration statistics agree as to the fact that the birth-rate in New Hampshire has not been decreasing, and both indicate that it may have experienced a slight increase since 1890. In this particular, it will be remembered, Northern New England differs from the other region of low birth-rate,—the Pacific coast,—where the census returns show a marked diminution in the number of young children.

Married women of child-bearing age constituted nearly 13 per cent. of the population of New Hampshire, both in 1890 and in 1900, so that the constant or slightly increasing rate of natural increase would seem to indicate corre-

* New Hampshire Registration Report, 1901-02, pp. v and ff.

† The present registrar of vital statistics states: "The returns of the births are defective in a small degree, as is the case under every known system of registration. It is obvious that all births are not reported, as in the instance where no physician is in attendance and the family is ignorant of any law requiring report to be made. It is believed that the number not reported is relatively small." *Registration Report*, 1901-02, p. xxi.

The census returns of young children are, however, more complete than the registration of births. In the twelve months preceding the taking of the census of 1900, 8,262 births were registered. The census reported 8,048 children less than a year old, —a disproportionately large number of survivors.

sponding conditions as to fecundity. This would be true, however, only on the assumption that the age distribution of married women of child-bearing age was nearly the same at both censuses. Since 1892 the registration reports of New Hampshire have classified births with reference to the age of the mothers. In Table VI this information has been utilized in connection with the census statistics of married women in various age groups.

TABLE VI.

BIRTHS PER 1,000 MARRIED WOMEN OF SPECIFIED AGE, NEW HAMPSHIRE, 1900.

	15-20.	20-25.	25-30.	30-35.	35-45.
Married women	1,736	7,764	11,403	11,511	20,591
Births*	566	2,099	2,283	1,631	1,424
Ratio (per 1,000) . . .	326.0	270.4	200.2	141.7	69.2

Table VI shows a marked inverse correlation between fecundity and age. It is obvious that in discussions of birth-rates attention should be given, not only to the distribution of the aggregate population as to age, sex, and conjugal condition, but also to the age distribution of the child-bearing part of the population.†

Table VII shows the age distribution of married women of child-bearing age in New Hampshire at the two latest censuses.

* Average for years 1898-1902, inclusive.

† Cf. Enrico Raseri, "Les naissances en rapport avec l'âge des parents," *Bulletin de l'Institut International de Statistique*, tome x, deuxième livraison, pp. 95 and ff.; Cornelius Walford, "Fecundity," *Insurance Cyclopædia*, vol. iii, pp. 183 and ff.; Miss B. L. Hutchins, "Note on the Distribution of Married Women in Relation to the Birth Rate," *Journal of the Royal Statistical Society*, vol. lxviii, pp. 183 and ff.; Richard Teece, "The Decline in the Birth-rate in New South Wales," *Transactions Actuarial Society of America*, vol. viii, pp. 43 and ff.

TABLE VII.

AGE DISTRIBUTION OF MARRIED WOMEN 15-45 YEARS OLD, NEW HAMPSHIRE,
1900 AND 1890.

Age group.	1900.		1890.		Increase.	
	Number.	Per cent.	Number.	Per cent.	Amount.	Per cent.
15-45 . . .	53,005	100.0	47,566	100.0	5,439	11.4
15-20 . . .	1,736	3.3	1,495	3.1	241	16.1
20-25 . . .	7,764	14.6	7,450	15.7	314	4.2
25-30 . . .	11,403	21.5	9,952	20.9	1,451	14.6
30-35 . . .	11,511	21.7	10,169	21.4	1,342	13.2
35-45 . . .	20,591	38.9	18,500	38.9	2,091	11.3

The changes shown in Table VII are not of great significance for the purposes of this inquiry, save possibly the noticeable decline in the relative number between twenty and twenty-five years old. Taken as a whole, the figures tend to strengthen the belief that there was a slight increase in fecundity during the decade from 1890 to 1900.

On account of the growing importance of the French Canadian element in the population of New Hampshire an especial interest attaches to a comparison of the fecundity of the native and foreign populations. Table VIII shows the per cents. that children under one make of married women of child-bearing age for these two classes of the population. The number of native white children of native mothers has been estimated by adding to the number of "native white children of native parentage" reported by the census a per cent. of the total population having native mothers and foreign fathers corresponding to the per cent. that children under one make of the total population. These corrections are, for 1900, 272; for 1890, 144. The same amounts have been deducted from the census figures of "native white children of foreign parentage," in order to get the number of native white children of foreign mothers.

TABLE VIII.

RATIO OF CHILDREN UNDER 1 YEAR OLD TO MARRIED WOMEN 15-45 YEARS OLD,
CLASSIFIED BY NATIVITY, NEW HAMPSHIRE, 1900 AND 1890.

	1900.	1890.
Married women 15-45 years old, native white	36,829	35,717
Children under 1, native white of native mothers	3,985	3,575
Per cent.	10.8	10.0
Married women 15-45 years of age, foreign white	16,093	11,793
Children under 1, native white of foreign mothers and foreign white	4,054	2,759
Per cent.	25.2	23.4

It appears that this ratio is over twice as large for the foreign as for the native population. There does not seem to have been any marked change in the *relative* fecundity of the two classes of the population between 1890 and 1900.

The State registration statistics give similar results. One-fifth of the total number of births* in the five years, 1898-1902, inclusive, is: for native mothers, 4,246; for foreign mothers, 3,811. These numbers are equivalent to 115.3 and 236.8, respectively, per thousand married women of child-bearing age. When the relation of the number of births to the age distribution of the mothers is taken into account, even more striking differences are found between the native and foreign birth-rates. Table IX shows such a comparison.

* The registration reports classify births by the birthplace of the mother (as native or foreign), but do not subdivide the class of native mothers into those having native or foreign parents. Accordingly in the subsequent tables the births to "native mothers" are compared with the total native white married women (including those of native and of foreign parentage). The colored population of New Hampshire is so small (only 797 at the census of 1900) that it has been disregarded in the computation of these tables, although, of course, the births credited in the registration reports to "native" and to "foreign" mothers include a few to colored mothers.

TABLE IX.

BIRTHS PER 1,000 MARRIED WOMEN OF SPECIFIED AGE, CLASSIFIED BY NATIVITY
OF MOTHER, NEW HAMPSHIRE, 1900.

	15-20.	20-25.	25-30.	30-35.	35-45.
Native white married women . . .	1,349	5,365	7,643	7,949	14,523
Births*	415	1,204	1,152	797	642
Ratio (per 1,000)	307.6	224.4	150.7	100.3	44.2
Foreign white married women . . .	386	2,379	3,735	3,551	6,042
Births*	146	881	1,113	823	775
Ratio (per 1,000)	378.3	370.3	298.0	231.8	128.3
Per cent. excess of foreign over native ratio	23.0	65.0	97.7	131.1	190.3

While the proportion of married women who bear children decreases with advancing age for both classes of the population, this decrease is much more rapid for the native population. For example, the birth ratio for native married women, thirty to thirty-five years old, is only 45 per cent. as large as it is for those ten years younger, while the fecundity of foreign married women, thirty to thirty-five years old, is 63 per cent. of the fecundity of those ten years younger. Native women between thirty-five and forty-five years of age bear relatively only one-seventh as many children as those fifteen to twenty years of age, while foreign women of thirty-five to forty-five years retain one-third of the fecundity of the lowest age group. The figures given in the table for the excess of the foreign over the native ratio in the various age groups clearly show these differences. It may be thought that the rapid decline of the fecundity of native women with advancing age is due to the fact that the lower age groups for this class contain a larger proportion of women having foreign parents than do the upper age groups. This assumption is not sustained by the facts: in the two lowest age groups 22 per cent. and 23 per cent., respectively, of the total native married women

* Average for years 1898-1902, inclusive.

are of foreign parentage, while for the two highest age groups the ratios are 19 per cent. and 16 per cent., the difference being too slight to be of much significance for the birth-rate.

This important fact—that the difference between the fecundity of native and foreign-born women is much greater at mature age than in the earlier years of married life—indicates, of course, that the greater fecundity of the foreign-born women is an individual as well as a group phenomenon, consisting, possibly, not so much in the fact that a larger percentage of them bear children as in the greater number of children born to each child-bearing woman. The registration reports contain material that throws additional light upon this difference, for since 1892 the births have been classified by nativity and age of mother in connection with a cross-classification according to the “number of child”; that is, as to whether the child is the first, second, third, etc., borne by the mother. Table X summarizes part of this information for five recent years, with the addition of columns showing the average distribution of each thousand births according to the number of the child.

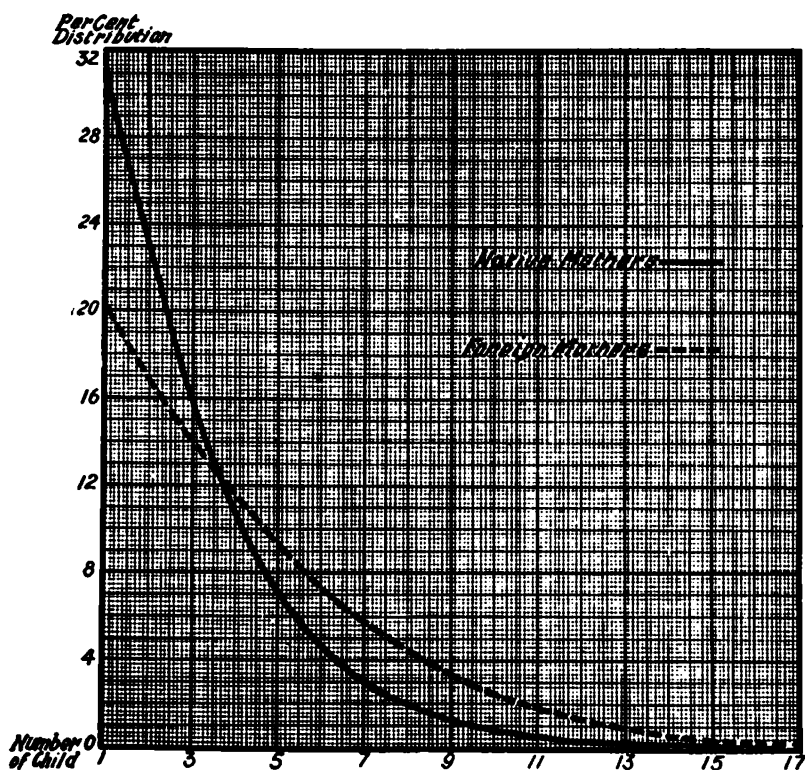
TABLE X.

BIRTHS IN NEW HAMPSHIRE FROM 1898 TO 1902, INCLUSIVE, CLASSIFIED BY NATIVITY OF MOTHER AND NUMBER OF CHILD.

Number of Child.	Native Mothers.		Foreign-born Mothers.	
	Number.	Per 1,000.	Number.	Per 1,000.
1	6,642	310.3	3,801	202.0
2	4,882	228.0	3,192	169.6
3	3,432	160.3	2,634	139.9
4	2,273	106.2	2,150	114.2
5	1,490	69.6	1,748	92.9
6	983	45.9	1,396	74.2
7	622	29.1	1,066	56.6
8	426	19.9	788	41.9
9	262	12.2	617	32.8
10	178	8.3	451	24.0
11	98	4.6	318	16.9
12	49	2.3	249	13.2
13	36	1.7	165	8.8
14	21	1.0	114	6.1
15	6	0.3	60	3.2
16	3	0.2	33	1.8
17	—	—	15	0.8
18	1	0.1	11	0.6
19	—	—	5	0.3
20	—	—	2	0.1
22	1	—	2	0.1
26	—	—	1	—
Total *	21,405	1,000.0	18,818	1,000.0

The greater "dispersion" of the births to foreign-born mothers appears clearly from the table, and is strikingly apparent in the diagram. First and second births are considerably more than half the total births to native women, while first, second, and third births are only a little over half the total births to foreign-born women. Children born to native women who had already borne eight children constitute a thirty-third of all births for that class. For foreign-born women the proportion is one-ninth. Table

* Not including births of which the "number" was not stated. These amount to 249 for native mothers and 390 for foreign mothers.



XI shows the per cent. distribution of births, according to the number of the child, for native and foreign-born mothers of three different age groups.

TABLE XI.

PER CENT. DISTRIBUTION OF BIRTHS IN NEW HAMPSHIRE FROM 1898 TO 1902, INCLUSIVE, ACCORDING TO NUMBER OF CHILD, CLASSIFIED BY NATIVITY AND AGE OF MOTHER.

Number of Child.	Native Mothers.			Foreign-born Mothers.		
	15-25.	25-35.	35-45.	15-25.	25-35.	35-45.
1	53.05	20.62	7.97	46.79	13.01	3.69
2	27.82	22.76	10.52	27.79	16.48	4.42
3	12.52	19.78	13.92	15.35	16.68	6.40
4	4.71	14.28	14.48	6.57	14.76	7.19
5	1.39	9.96	11.96	2.56	13.51	8.24
6	0.37	5.93	10.83	0.67	10.25	10.00
7	0.14	3.20	8.94	0.16	6.93	10.00
8	—	1.97	6.87	0.10	3.96	10.00
9	—	0.85	5.13	0.02	2.29	9.90
10	—	0.39	4.06	—	0.99	8.83
11	—	0.15	2.33	—	0.56	6.61
12	—	0.06	1.20	—	0.30	5.56
13	—	0.04	0.95	—	0.15	3.58
14	—	0.01	0.50	—	0.12	2.37
15	—	—	0.19	—	0.01	1.50
16	—	—	0.09	—	—	0.79
17	—	—	0.03	—	—	0.37
18	—	—	0.03	—	—	0.34
19	—	—	—	—	—	0.13
20	—	—	—	—	—	0.05
21	—	—	—	—	—	—
22	—	—	—	—	—	0.03
Total . . .	100.00	100.00	100.00	100.00	100.00	100.00

It will be noted that for the group of fifteen to twenty-five years the relative frequency of second births is about the same for both classes, so that the greater frequency of the births of third or a higher number of children to foreign-born mothers just equalizes the relatively greater frequency of first births to native mothers. For the group of mothers between twenty-five and thirty-five years old the "mode" is the second child of native mothers and the third of foreign mothers. In the thirty-five to forty-five year group the mode is, for native mothers, the fourth child; for foreign mothers, the seventh or eighth child.

The ratios given in Tables X and XI are in no sense birth-rates. It must not be inferred, for example, that the birth-rate for first children is higher for native than for foreign-born mothers. That such is not the case is shown by Table XII.

TABLE XII.

RATIO OF FIRST BIRTHS TO MARRIED WOMEN, CLASSIFIED BY NATIVITY AND AGE, NEW HAMPSHIRE, 1900.

	15-25.	25-35.	35-45.
Native married women	6,714	15,592	14,523
First births *	852	398	50
Ratio (per 1,000)	126.9	25.5	3.4
Foreign-born married women	2,765	7,286	6,042
First births *	474	245	28
Ratio (per 1,000)	171.4	33.6	4.6

It is evident that not only is the fecundity of those foreign-born women who bear children greater than that of native women, but that also a larger proportion of foreign-born married women bear children. Nevertheless, the fact that the difference between the fecundity of the two classes of the population is greater for the higher than for the lower age groups is entirely due to the greater number of children borne by the average child-bearing women of foreign birth. In each of the age groups indicated in Table XII the ratio of *first* births to native married women is approximately three-fourths of the corresponding ratio for foreign married women. Tables XI and XII, taken together, show clearly the differences in the fecundity of the two classes of the population. For example, the fact that the ratio of first births to married women between thirty-five and forty-five is, for the two classes considered, 3.4 and 4.6 per thousand, respectively, needs to be considered in connection with the fact that for one class first births constitute

* Average for years 1898-1902, inclusive.

7.97 per cent. of all births, while for the other class they constitute only 3.69 per cent.

How do these characteristic differences in the fecundity of the two classes of the population affect their natural increase? This question is not one which can be easily answered, for the children born within the State to foreign mothers swell the numbers of the native population. The population classed as "foreign-born" is increased only through immigration. We might compute the ratio of native children of native parents to the total native population or to the total native population of native parentage, but either ratio would be misleading. In place of attempting to get at the rate of natural increase of the two classes of the population directly, it will be better to adopt an indirect method. Natural increase may be considered as a function of two variables,—the fecundity of married women of child-bearing age and the proportion these make of the total population. This latter ratio can be studied by the use of marriage, divorce, and mortality rates, but it can be got at more simply and directly through the use of the census returns. The proportion that married women of child-bearing age make of the total female population or of the total aggregate population did not change noticeably in the decade 1890–1900,* nor does the *relative* fecundity of native and foreign-born married women of child-bearing age seem to have changed in any great degree during the same decade. Did the importance of each of these two classes of child-bearing women in the total population and in their own class of the population remain constant during the decade? The data necessary to afford an answer to this question are given in Table XIII.

* See Table IV above.

TABLE XIII.

PER CENTS. THAT MARRIED WOMEN 15-45 YEARS OLD MAKE OF SPECIFIED CLASSES OF THE POPULATION, CLASSIFIED BY NATIVITY, NEW HAMPSHIRE, 1900 AND 1890.

	1900.	1890.
Total population	411,588	376,530
Per cent. native married women 15-45 years old	8.9	9.5
Per cent. foreign-born married women 15-45 years old,	3.9	3.1
Total native population	323,481	304,180
Per cent. married women 15-45 years old	11.4	11.7
Total foreign-born population	88,107	72,340
Per cent. married women 15-45 years old	18.3	16.3
Total native women	162,615	153,469
Per cent. married and 15-45 years old	22.6	23.3
Total foreign-born women	43,594	36,495
Per cent. married and 15-45 years old	36.9	32.43
Total native women 15-45 years old	69,156	67,594
Per cent. married	53.3	52.8
Total foreign-born women 15-45 years old	27,830	22,894
Per cent. married	57.8	51.5
Total native married women 15-45 years old	36,829	35,717
Total foreign-born married women 15-45 years old	16,093	11,793

Native married women of child-bearing age were a smaller proportion of the total population in 1900 than in 1890. The same is true of the proportion they constituted of the total native population and of the native female population. This decline in numerical importance is connected with the fact that during the decade the female population fifteen to forty-five years old decreased from 44 per cent. to 42.5 per cent. of the total female population. Married women made a slightly larger per cent. of all women between fifteen and forty-five in 1900 than they did in 1890. Foreign-born married women of child-bearing age were relatively more numerous in 1900 than in 1890. Not only did they constitute at the later census a larger per cent. of the total popu-

lation, the total foreign-born population, and the total foreign-born female population, but they were also a larger proportion of all foreign-born women in their own age group. Married women of child-bearing age are a much larger part of the foreign-born population than they are of the native population. Add to this the greater fecundity of the foreign-born married women and the fact that they are increasing in relative numerical importance, while the reverse is true of native married women of child-bearing age, and the net result is that there is a much greater difference between the natural increase of the native and of the foreign-born population—or, more accurately, in the relative numbers they are contributing to the growth of the native population—than there is between the fecundity of the two classes.

Neither the statistics of births nor of the number of young children in the population enable us to distinguish the fecundity of native women of native parents from that of native women of foreign parents. The number of married women of child-bearing age in each class is, however, given by the census, and is shown in Table XIV.

TABLE XIV.

MARRIED WOMEN 15-45 YEARS OLD, CLASSIFIED BY AGE, NATIVITY, AND NATIVITY OF PARENTS, NEW HAMPSHIRE, 1900 AND 1890.

	Total.	15-25.	25-30.	30-35.	35-45.
Aggregate:					
1900	53,005	9,500	11,403	11,511	20,591
1890	47,566	8,945	9,952	10,169	18,500
Amount of increase.	5,439	555	1,451	1,342	2,091
Per cent. of increase	11.4	6.2	14.6	13.2	11.3
Native of native parents:					
1900	29,689	5,166	5,880	6,403	12,240
1890	31,540	5,412	6,016	6,864	13,248
Amount of increase.	-1,851	-246	-136	-461	-1,008
Per cent. increase	-5.9	-4.5	-2.3	-6.7	-7.6
Native of foreign parents:					
1900	7,140	1,548	1,763	1,546	2,283
1890	4,177	1,027	1,049	968	1,115
Amount of increase.	2,963	521	714	560	1,168
Per cent. increase	71.0	50.7	68.0	56.8	104.7
Foreign-born:					
1900	16,093	2,765	3,735	3,551	6,042
1890	11,793	2,497	2,875	2,305	4,116
Amount of increase.	4,300	268	860	1,246	1,926
Per cent. increase	36.5	10.7	29.9	54.0	46.7

Among the married women of child-bearing age those whose parents, as well as themselves, were native Americans decreased in numbers during the decade,—a statement which holds true for each age group. That the total number of native married women did not decrease during the decade is due to the remarkable increase in the numbers of those whose parents were foreigners, amounting for the group between thirty-five and forty-five years of age to over 100 per cent. The numbers of the married women who were themselves born in foreign countries also increased in each age group, but their increase was relatively less than that of the natives of foreign parentage. Undoubtedly, the fecundity of native women of native parentage is very considerably less than that of native women of foreign parentage,

so that added emphasis is given to the obvious deduction from the figures shown in Table XIV, that the population of "American stock" is being rapidly replaced by a population of foreign ancestry.

The numbers of the foreign-born married women of child-bearing age are of course recruited by immigration of those already married, and by marriages of those who have come into this country while yet unmarried. Statistics of immigration are lacking, but the registration reports of marriages within the State can be utilized. The ratio of the average number of marriages in the five years 1898-1902 to each thousand of the total population was 9.5. For the years 1888-1892 the ratio was 9.9. Table XV shows other ratios.

TABLE XV.
MARRIAGE RATES IN NEW HAMPSHIRE, 1900 AND 1890.

	Native.		Foreign-born.	
	1900.	1890.	1900.	1890.
Number of women married	2,786*	2,575†	1,111*	967†
Female population	162,286	153,221	43,574	36,448
Number married per 1,000	17.2	16.8	25.5	26.5
Unmarried female population	83,231	75,249	16,307	15,906
Number of married per 1,000	33.5	34.2	68.1	60.8
Unmarried female population 15-45 years old	29,636	29,501	10,816	10,351
Number married per 1,000	94.0	87.3	102.6	93.4

This table shows clearly the danger in the use of crude marriage rates. The very great discrepancy between the ratio of the marriages of native women to the native female population and the corresponding ratio for the marriages of foreign women very largely disappears when the number of marriages is compared with the number of women be-

* Average for years 1898-1902.

† Average for years 1888-92.

tween fifteen and forty-five years of age (a group which furnishes 95 per cent. of all the women who are married). The expectancy of marriage is not much greater for foreign-born marriageable women than for natives. The marked increase during the decade in the refined marriage rate for both classes is somewhat misleading, as the improvement of the registration system has diminished the number of marriages not classified by the nativity of the bride, which could not, of course, be included in the table. Such omissions amount to 5 per cent. of all marriages registered in the five years 1888-92, and to only one-half of 1 per cent. for the years 1898-1902. However, the ratio of all marriages to the total unmarried female population between fifteen and forty-five years of age increased from 88.9 to 96.4 per thousand. A comparison of Tables XIV and XV would seem to indicate that the growth in the relative importance of foreign-born married women of child-bearing age in the population is due rather to immigration than to a high marriage rate of those already in the country.

While the numbers of married women of child-bearing age are continually being recruited by immigration and by marriage, they are continually being depleted by emigration, death, and divorce. A complete study of the conditions affecting the natural increase of the foreign population would have to take account of these factors, but the mortality and divorce statistics available for New Hampshire are not classified in such a manner as to make them useful in this connection.